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IC-275 A/H	25 w./A; 100 w./H	138-174	140-150	99		No	Yes	Optional UT-34	No						
MOBILES															
IC-228H	45 w.	138-174	140-150	20	20	No	Yes	Optional UT-40	No					No	
IC-229 A/H	25 w./A; 50 w./H	136-174	140-150	20	20	14	Yes	Optional UT-50	Optional UT-55					Yes	
IC-2400	45 w./2m; 35 w/70 cm	138-174 440-450	140-150 440-450	40	40	No	Yes	Optional UT-40	No	Yes				No	
IC-3220 A/H	A: 25 w./2m; 25 w./70 cm H: 45 w./2m; 35 w./70 cm	136-174 440-450	140-150 440-450	36	36	No	Optional UT-51	Optional UT-50	Optional UT-55	Yes	No	No	No	No	
IC-901	50 w./2m, 35 w./70 cm	136-174 440-450	140-150 440-450	24	24	No	Yes	Optional UT-40	Optional UT-48	Yes					Yes
HANDHELDS															
IC-2SAT	1.5 w. std.; 5 w. optl.	136-174	140-150	48	48	10	Optional UT-51	Optional UT-50	Optional UT-49		Yes	Yes	Yes	Yes	
IC-2SA	1.5 w. std.; 5 w. optl.	136-174	140-150	48	48	No	Optional UT-51	Optional UT-50	Optional UT-49		Yes	Yes	No	Yes	
IC-24AT	1.5 w. std.; 5 w. optl.	136-174 440-450	140-150 440-450	40	40	4	Optional UT-51	Optional UT-50	No	Yes	Yes	Yes	Yes	Yes	Yes
IC-2GAT	7 w.	136-174	140-150	20		No	Yes	Optional UT-40	No		No	No	No	No	
IC-02AT	5 w.	140-150	140-150	10	4	No	Yes	No	No		No	No	Yes	No	
IC-32AT	5.5 w. std.	138-174 440-450	140-150 440-450	20	20	No	Yes	Optional UT-40	No	Yes	No	No	Yes	No	Yes

*SSB/CW 35 w/2m; 30 w/70 cm

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QST CANADA

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ABOUT THE COVER

The Aurora VHF/UHF Society 6-metre EME array (that's right—6-metres!) at Namao, Alberta, features four two and one-half wavelength yagis on a 60-foot tower. A hydraulic system is used to control the elevation. In the backgound: EME arrays for the 2-metre and 70-cemtimetre bands. *(VE6JW photo)* ■

It Seems to Us.../Il nous semble...

The 40-Metre Band

Pedro Seidemann, YV5BPG, is Director of WARC Preparations for IARU Region 2. IARU regions correspond to ITU regions. Region 1 consists of Europe and Africa, Region 2 of North and South America, and Region 3 of Asia and Oceania. Canada, of course, is in IARU Region 2. Pedro's comments are most timely.

When an IARU Executive Committee member or a Director of an IARU member-society speaks to a group of amateurs about our amateur bands, almost invariably, the first question is about the 40-metre band. This is especially true in Latin America and in the Caribbean where the 40-metre band continues to be important for national and regional communications.

"What about the broadcasting stations in the 40-metre band?" is often asked. Because broadcasting stations have been operating illegally in the 7.0–7.1-MHz segment for so long, there is much confusion among amateurs in our region— quite understandably so.

The 7.0–7.1-MHz segment is a worldwide AMATEUR EXCLUSIVE allocation. The IARU Observer Team at WARC-79 was able to persuade a majority of administrations to pass a resolution to clear this portion of the band of illegal broadcasting. Now, by 1990, this has largely been accomplished.

The 7.1–7.2-MHz segment, however, is AMATEUR EXCLUSIVE only in Region 2. Thus, European broadcasting stations operate legally in this segment of the 40-metre band. At WARC-79, a resolution was passed directing broadcasting stations in Regions 1 and 3 not to aim their transmissions to listeners in Region 2—but not without passing a similar resolution directing amateurs in Regions 2 not to aim their transmissions at Region 1 and 3 stations operating in 7.1–7.3 MHz.

This segment, this shared allocation, made history at WARC-79. Broadcasters had pushed for exclusive allocations in the 40-metre band and the IARU Observer Team had a very difficult time preventing loss of 7.1–7.3 MHz in Region 2—frequencies important to all of us. At one point, we actually lost 7.1–7.3 MHz in a crucial WARC committee vote. In an unprecedented effort, by lobbying the delegates of many countries, IARU achieved what had seemed to be impossible: IARU was able to reverse a committee decision and save the 40-metre band. Most dramatic of all was the fact that every single Region 2 delegation, from Canada to Uruguay on the continents, and from Cuba to Trinidad and Tobago in the Caribbean, voted in favour of retaining 7.1–7.3 MHz for amateur use in the Americas.

So much for history. What about WARC-92? Are we going to have to fight to save our 40-metre band again? The answer is a resounding "yes", and the work has already begun, in the form of IARU Region 2 preparations for WARC-92. This time, the fight is complicated by the fact that whole reason WARC-92 is reviewing the HF bands at all is because of petitions from HF broadcasters seeking additional frequencies. Hence we are forced again to take defensive action and prove to a majority of the WARC-92 delegates that Amateur Radio needs to retain its 40-metre allocation—not an easy task, but by no means impossible.

It would be a duplication to map out the various IARU strategies for saving the 40-metre band. These have already been circulated to IARU Region 2 member-societies. (Editor's note: possible strategies include letting the WARC move the entire 40-metre band down 50 kHz to give both amateurs and the broadcasters the exclusive frequencies they feel they need.) It is appropriate to say that, due to the agenda drawn up by ITU, our cherished 40-metre band is in danger and will need vigorous defence. At WARC-92, amateur success will be measured by what we save. This will be quite a challenge for all of us, but with understanding, cooperation and much goodwill and hard work, we will succeed.

Let me conclude, however, with a warning. No individual amateur can save the 40-metre band, but a single amateur can indeed seriously hurt IARU efforts to save the 40-metre band. The last thing we need now, for example, is for an amateur, for whatever sane or insane reason, to begin making illegal broadcast-like transmissions on any band, or to repeatedly use foul language, or to otherwise abuse his or her Amateur Radio privileges. An administration, unfriendly to Amateur Radio, could use this as an example of improper use of scarce radio spectrum that could better benefit mankind by giving it to the broadcasting service. We could lose our 40-metre band.

We must be vigilant against abuses that appear on our amateur bands—and on the 40-metre band in particular. This includes handling third-party traffic of an improper nature or between countries where third-party traffic is not allowed, or any other activity that may bring dishonour to our Amateur Service or destroy its good reputation. —*Pedro Seidemann, YV5BPG, Caracas, Venezuela* ■

Letters/Lettres

Conducted By Harry MacLean, VE3GRO

All letters are considered carefully. Letters are edited and may be condensed in order to have more information and readers' views presented. The publishers of *QST Canada* assume no responsibility for statements made by correspondents.

THE SWEEPER—ONE MORE TIME

Thank you for printing my letter on the "Sweeper" in November *QST Canada*, and for printing the reply from W. L. Gibson. I appreciated Gib's reply, but I still feel he has not answered my concern. Perhaps this is because he doesn't understand the severity of the interference. The "Sweeper" signals are far too strong to be coming from legitimate sources. Ionospheric sounding has been going on for many years, but the "Sweeper" only started a couple of years ago, near the start of the current solar peak. The signal is often 10–20 dB stronger than any other signal on the band. The received strength in Vancouver is such that, at times, it can easily be detected with 50 dB of antenna attenuation with a –127 dBm/2.5 kHz receiver and a 14-MHz ground-plane antenna. Often there are 10–20 sweeps per minute. It is very annoying.

No side benefit can justify this amount of interference. I think the amateur fraternity should show its usual leadership and expose the "Sweeper", be it military, commercial or government. The "Sweeper" is a form of pollution. As time goes by, people tend to get used to pollution and lower their standards of acceptability.

How do we find the culprit? Unfortunately, characteristics of the "Sweeper" make it almost impossible to direction-find. However, we could:

1. synchronize a synthesized receiver to the "Sweeper" (since it does sweep at a constant rate) and try to find it with hand-held null antennas. Note that for a 100 kHz/s sweep rate, a receiver with a 10 kHz bandwidth can tolerate a maximum sync error of only 50 ms.

2. devise a system to log signal strength at various frequencies over a long period of time. The data would give an indication of probable location.

3. use a large number of amateurs to individually determine if they were, say, within 10 km of the source. Even if nothing were found, we would reduce the number of possible locations.

4. coordinate with amateurs in Australia, Japan and Europe. This would help isolate the continent of origin.

Since my original letter appeared, I have heard from many local amateurs who say, "Yes, I am hearing the 'Sweeper', and it is very annoying. I would like to hear from other amateurs across the country. *—Markus Hansen, VE7CA, 674 St Ives Cr, North Vancouver, BC V7N 2X3*

FIELD DAY RESULTS

I must take issue with your reporting of Field Day results in November *QST Canada*. You have lumped all the participants into one listing which puts the top score at the top of the list irrespective of the class in which the various stations were in. You have compared apples with oranges. Please, in the future, align the top scores according to class, so the top score in each class can be recognized. *—R. H. Webb, VE7OM, White Rock, BC*

Editor's note: We did this a few years ago and we promised some BC amateurs that it wouldn't happen again—but it did. We'll redouble our efforts next year. ■

The Canadian Radio Relay League, Inc
La Ligue Canadienne de la Radio Amateur, Inc

The Canadian Radio Relay League (CRRL) is a noncommercial association of radio amateurs organized for the promotion of Amateur Radio communications and experimentation, for the establishment of networks to provide communications in the event of disasters or other emergencies, for the advancement of the radio art and the public welfare, for the representation of radio amateurs in legislative and other matters, and for the maintenance of fraternalism and a high standard of conduct.

CRRL is incorporated under the Canada Corporations Act. Its affairs are governed by a seven-member Board of Directors elected every two years by the CRRL general membership. CRRL is noncommercial, and no one who could gain financially by the shaping of its affairs is eligible for membership on its Board.

CRRL is the Canadian member-society of the International Amateur Radio Union (IARU). "Of, by and for the Canadian Radio Amateur", CRRL numbers within its ranks the vast majority of active amateurs in the nation and has a proud history of achievement in amateur affairs.

A bona fide interest in Amateur Radio is the only essential requirement for membership. An Amateur Radio licence is not required, although full voting membership is granted only to licensed amateurs in Canada.

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Calendar

Attention: Deadline for items is the 20th of the second month preceding month of publication. For example, information should reach *QST Canada* by January 20 to be included in a March issue.

St Catharines, ON: 13th Annual Big Event, 1991 February 2, at the CAW Hall, 124 Bunting Rd. Sponsored by Niagara Peninsula Amateur Radio Club (NPARC). Hamfest in the morning: Admission $3, commercial tables $12, non-commercial tables $5 Dinner-dance in the evening: tickets must be ordered in advance. Talk-in on VE3NRS, 147.24 MHz (+). For more information, Contact NPARC, Box 692, St Catharines, ON L2R 6Y3, Tel (416) 562-4891. ■

A Mast-Mounted Antenna Switch

A homebrew switch that works as well as the commercial versions—and costs a lot less money.

By Paul Tait, VE3ERK
55 Wayne Drive
Kitchener, ON N2A 1M4

It came as no surprise when I looked at my tower some months ago and noticed that there was more coax than tower leg showing. Being reasonably active on HF as well as on two metres, I had been slowly adding more and more lines up the tower to feed the various antennas. I fact, the hole through the wall into my basement was almost large enough for a baby to crawl through! I decided it was time to take some action.

In the past, I had looked at commercially available remote antenna switching units. I often thought "What a neat idea!" Most are capable of switching five or six antennas—ideal for the amateur who has a beam, dipole or whatever for every band. But, in my case, I felt that a switch for five or six antennas was more than what I needed. And prices for commercial units were outside my budget.

What were my actual requirements?

Since I run a packet station 24 hours-a-day, I have one feedline dedicated to my two-metre packet antenna. I also have J-pole for two-metre voice QSOs, and a ten-element two-metre beam. There is a switching setup to move the beam from voice or packet operation. Thus, I decided to keep all VHF feedlines intact for the being, and work only on the HF situation.

On HF, I have a five-band trap dipole, a TS-33jr beam, and a 20-metre coaxial dipole that will likely be replaced by a two-band dipole for the 18- and 24-MHz bands in the near future. Three feedlines that could be condensed down to one! I decided that an in-shack switching system should handle these three antennas, a dummy load and offer an in-shack connection for a future 160-metre antenna. This would be adequate for my needs.

Through the design process, I arrived at the system illustrated in Figure 1. A single two-wire circuit is all that is required to feed the switching relays mounted on the tower. The diode in series with the second relay coil allows one or both of the relays to be energized depending on the polarity of the DC being fed to the relays.

With this system, when neither coil is energized, antenna A is connected. When the first relay is energized, antenna B is connected. Finally, when both relays are energized, antenna C is connected. If the DC feed up to the tower relay box fails for any reason, I still have antenna A connected. I connected my most frequently used antenna to A, the second most used to B and the least used antenna to C. Thus, little or no current is used with the most frequently used antennas.

Putting it all together...

The big question was how to achieve what I wanted without costs getting out of line. The obvious answer was to consult the junk box. I already had a weatherproof 4" x 5" x 6" cast-metal box purchased at a fleamarket, an assortment of 12 Vdc relays and a 3-section 6-position non-shorting switch. (Note: If you build a similar system, do not use a switch of the shorting type, as you will be using the switch to change the polarity of the DC fed to the relays. Even a momentary shorting of the DC lines could have serious consequences, not only for the switch itself but also for components in the power supply. If you aren't familiar with shorting and non-shorting switches, check with someone who is before proceeding.) Also needed: some SO-239 connectors, a 1-A diode, some red LEDs and some power supply parts. A full list of parts can be found at the end of this article.

Construction

When mounting the two relays in their weatherproof switchbox, give some care to their positions. Mount the relays in such a way that the leads to the SO-239s as short as possible (see Figure 2). Note that two holes are drilled in the rear of the box and two 2-1/2" x 1/4" bolts are mounted from the inside out to suit the saddle that you will use when mounting the box on your tower. If your tower does not have tubular legs, a saddle may not be needed at all. Instead, a flat piece of steel may be helpful in mounting the box on a tower leg. After all the holes are drilled, install and wire up the components as per Figure 4, and set this switchbox aside.

The next step is to assemble the control box. Keep in mind that you can configure this any way you want. Mine was designed to allow mounting underneath of a shelf. Use the circuit diagram in Figure 3 as a guide, making modifications as required. Once the control box is completed, you can make initial tests, or proceed to build the switchbox that will sit in your shack to switch in the dummy load. Of course, you may decide to omit this option and use an ordinary coaxial switch. My ideas was to control everything from one location and not have to reach around or behind this or that—in other words, to keep things simple!

Testing

When you reach the point where you feel you're finished, give the entire system the smoke test. Use the actual length of wire you plan to use to feed 12 Vdc to the relays. This will alert you if the resistance is so high that it affects the operation of the relays. When I used #14 lamp cord, the relays switched in and out without problems. Also, use an ohmmeter to make sure your SO-239s are being switched correctly as you turn the selector knob on the control box. Fixing things on the ground is a lot simpler than fixing things on the tower. If both relays close when only one is supposed to, your DC polarity is reversed. Should this happen, don't bother rewiring the control box. Just switch the DC wires at A-B or C-D to achieve the proper sequence.

Before taking down old feedlines, note their various lengths. Your master feedline up the tower should equal the shortest of your feedlines, including the length from the tower relays to an antenna. In giving this advice, I assume that, in your original installation, you took the trouble to adjust the length of your feedlines for minimum SWR. If you keep the length of the new line comparable to the length of the old lines, there should be few surprises when the new system is tested.

Using high power

In my system, the TS-440S-AT tunes up the antennas much as before. I've not noticed any arcing or other strange problems. Remember that if you want to run higher power, you must choose relays that will be able to handle it. My homebrew 813 linear only puts out about 660 watts and I seldom use it. However, since it would be working in a low-impedance environment, I expect few problems. Still, exercise care when you fire up with a linear for the first time. Arcing or burning

linear for the first time. Arcing or burning at the relay contacts may occur.

Conclusion

No lightning protection has been incorporated into this system. Disconnect the coax whenever lightning threatens. Also remember to disconnect the DC feedlines, since lightning will come down these lines as easily as down the coax. Why not try building one of these antenna switches? You'll be glad you did.

Parts List

Tower switchbox and shack switchbox each require...

2 12-Vdc relays
1 1-A 100-PIV diode
4 SO-239 connectors
terminals for the 12-V feedline

The tower switchbox also requires...

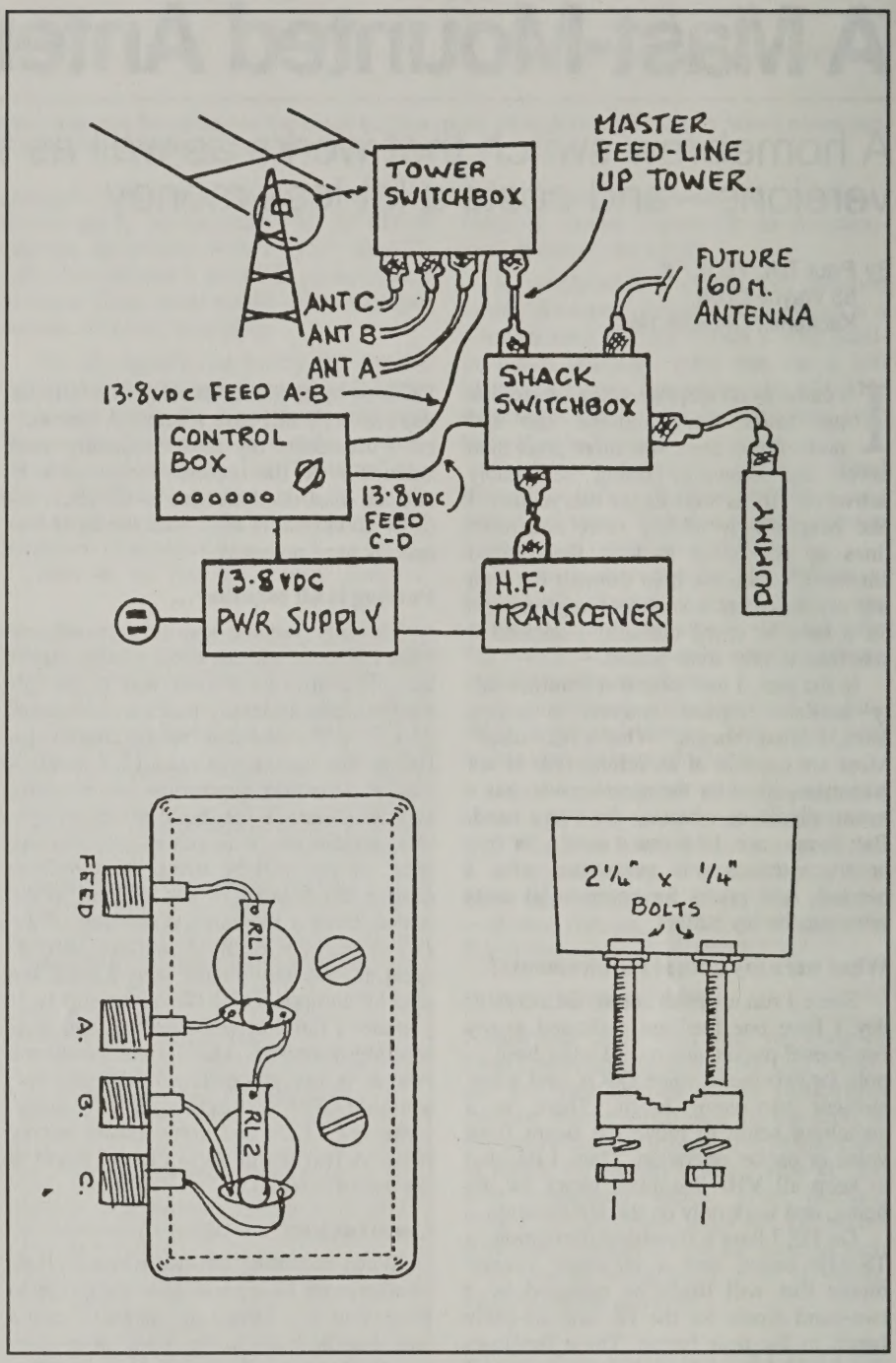
1 weatherproof box
2 2-1/2" x 1/4" plated bolts, lockwashers and nuts
1 clamp, a saddle or a flat metal bar

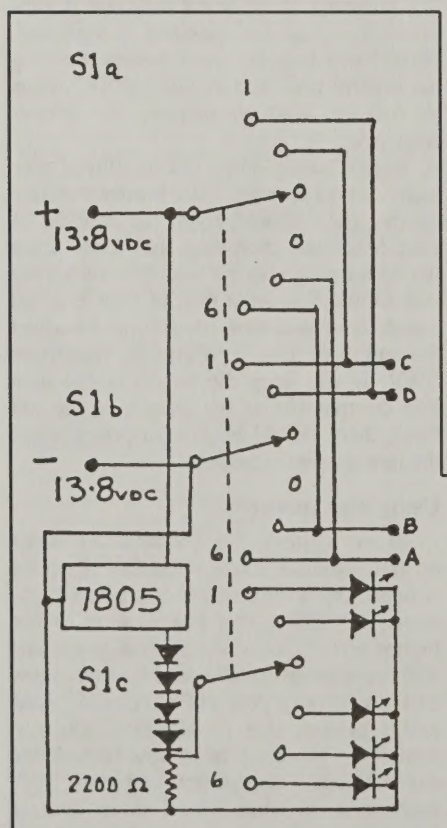
The shack switchbox also requires...

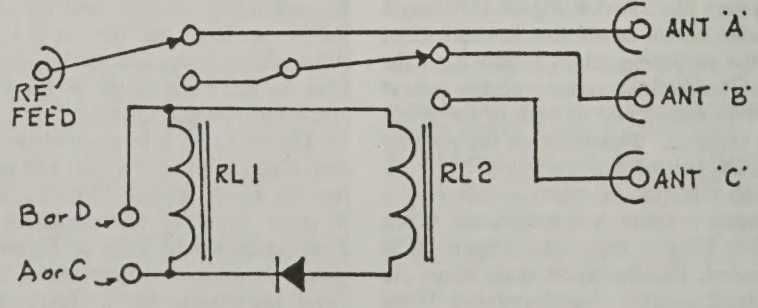
1 metal box
mounting hardware

The shack control box requires...

1 plastic minibox
1 3-pole 5-position non-shorting switch
3 terminal strips
5 LEDs
1 7805 voltage regulator
1 220-Ω 1/2-W resistor
4 1/2-A silicon diodes







Above: Fig 1—The system described in the text, and Fig 2—parts placement for the tower switchbox. A similar arrangement is used for the shack switchbox. Left: Fig 3—the schematic for the control box. Below: Fig 4—the schematic for the tower switchbox. ■

1989 Trail Ride Championships

Labour Day weekend, and Amateur Radio was there.

By Dick Maguire, VE4HK
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This horse riding event was held in the Souris River Bend Wildlife Management Area, just south of Brandon, Manitoba, on August 31—September 3. The Championship is similar to a car rally where pure speed counts for very little. Horses and riders leave the start line at staggered intervals and must arrive at checkpoints at specific times. If they are early or late, they are penalized. They are also penalized if their horses fail a test at the last two checkpoints.

There were four divisions in the competition. A total of about fifty horses and riders participated.

The weather for the event was extremely hot for a Labour Day weekend—in the mid-30s both days. Normal temperatures would be in the mid-20s. There was no wind whatsoever in the bush, where the checkpoints were located. Only at our base station it was quite windy.

Outsiders think of Manitoba as being flat as a billiard table from border to border. Nothing could be farther from the truth. In our province, a tourist will find the Canadian Shield, rolling hills, beautiful sandy beaches, an desert and near-tundra. The Souris River Valley, where the championship took place, has beautiful rolling hills and wide meadows, reminiscent of the foothills of Alberta or of South Dakota.

The Souris River Bend Wildlife Management Area is typical of the area. It has high hills, scrub oak and rivers, and is surrounded by fields of grain. It is normally closed to the public and is opened only for events like the Trail Ride Championship. It is completely undeveloped—no electricity, no corner stores and no washrooms. It is the perfect place to get away from it all. At night, there is not a light to be seen anywhere—just the stars and the moon. Truly awe-inspiring!

The course was 20 miles long, covering hills, river crossings, bush and open meadows. It was a true challenge to horse and rider alike. There were three checkpoints along the route, one located every five miles. Senior division riders covered the course twice on both Saturday and Sunday. Intermediate riders rode twice on Saturday, and Novice riders rode once on Sunday. The Saturday route was reversed for the Sunday rides.

Veterinarians and other volunteers were on hand at the second and third checkpoints. They were responsible for checking each horse's pulse and respiration as it arrived. If a horse failed its test, it was held at the checkpoint for ten minutes and tested again until it passed.

Eight radio amateurs provided communications for this event. We were stationed at each of the three checkpoints and at ride headquarters. Yori, VE4ACK, set up his portable 2-metre repeater on a centrally located hill. It worked perfectly and provided solid coverage over the whole course. Jim, VE3AJR, operated the base station. Bob, VE4AOJ, and I handled the first checkpoint, Adam, VE4ANG and Fred, VE4ACT, ran the middle checkpoint, while Doug, VE3LYO, and Dan, VE4CA, worked at the third.

Our responsibilities were to relay rider numbers and times as each horse arrived at a checkpoint. When necessary, we also worked with the veterinarians to relay information to the next checkpoint or to the base station. We had no problems with communications anywhere, thanks to the repeater.

Bob, VE4AOJ, and I had a very interesting journey to our checkpoint each day. It involved a 30–45 minute drive from the base camp over gravel and dirt roads, and tracks beaten in the grass. It also involved fording the Souris River. Luckily, the water was only bumper deep! We quickly designed a form on which to mark down the number of each horse and rider as they entered our checkpoint.

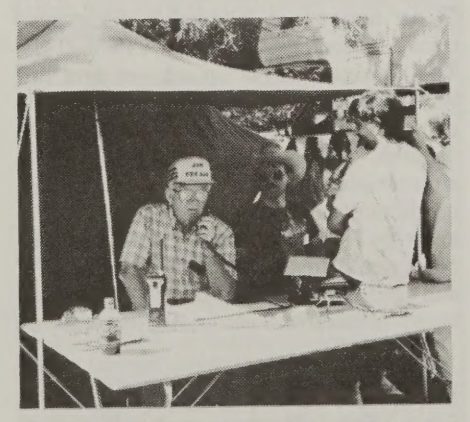
The form also listed the number of each rider, and as each rider passed by, we marked off those numbers. That enabled us to discover that one pair of riders was missing. The sweep riders had not seen them, but they had taken a shortcut along the trail. Then the missing riders showed up, one-half hour late. They had taken a wrong turn.

There was the only one unusual incident to report. One of the volunteers, a young lady, was severely allergic to bee stings. She had antidote with her, but was unsure of the proper dose. We autopatched to Brandon Hospital and found that her medicine was "pre-dosed".

All of the amateurs had a wonderful time and will likely be back next year. Everyone involved with the Championship, from officials to entrants to volunteers were pleasantly surprised at our capabilities. Instant access to every part of their course—they never had that previously. I'm confident we'll be invited back.

Bob, VE4AOJ, fords the Souris River to get to his checkpoint: Amateur Radio service at its finest.

Amateur volunteers stand by as veternarians do "P & R", pulse and respiration tests on the horses.



Jim, VE3AJR, mans the base station at the 1989 Trail Ride Championships. (All photos by the author) ■

DOC Clarifies CPC-2-0-03

❒ DOC has clarified its position on CPC-2-0-03, Municipal Consultation on Non-Broadcasting Antennas and Antenna Supporting Structures. In a reply to CRRL Counsel Tim Ellam, VE6SH (text of Tim's letter appeared in last month's *QST Canada*), R. W. Jones, Director-General, Radio Regulatory Branch, DOC stated: "...since an amateur licence permits a radio amateur to establish a fixed, transportable and mobile radio station, many amateurs do not necessarily possess any equipment or are unaware of their antenna structure requirements at time of licensing. Consequently, radio amateurs are *not* required to have the parameters of their specific installations individually approved and are *not* required to follow the declaration procedures in CPC-2-0-03. Should radio amateurs decide to erect a significant tower or antenna installation, they *are encouraged* to consult with their local municipality to ensure that municipality concerns are addressed. The nature of the consultation is a *matter of judgement for the amateur radio station licensee*, given the highly variable nature of amateur radio installations."

Thus, DOC is leaving it up to the individual amateur to decide if there will be municipal consultation or not. Unfortunately, this does not mean that things are exactly as they were before CPC-2-0-03. Because of the reference to Amateur Radio in the CPC, there is a good chance that municipalities will still believe that Amateur Radio antennas must have some kind of municipal approval. This has already happened to an amateur in Edmonton—the second in that city to experience fallout from CPC-2-0-03 in recent months. CRRL has asked DOC to modify the CPC so it will be clear to all municipalities that the terms of CPC-2-0-03 do not apply to amateur stations.

❒ An amateur in Edmonton did experience a serious problem with CPC-2-0-03. The amateur had put up a tower over two years ago, but neighbours continued to complain about the tower to local DOC. In October, a local DOC official told the amateur that he would have to poll his neighbours and have them approve his tower by December 17, or local DOC officials would invoke the terms of the CPC and render a decision—one that might not be favourable to the amateur.

Gouvernement du Canada
Ministère des Communications

Government of Canada
Department of Communications

300 Slater Street
Ottawa, Ontario
K1A 0C8

Votre référence Your file

Notre référence Our file
November 27, 1990

Mr. Tim S. Ellam
McCarthy Tétrault
Barristers & Solicitors
Suite 1600
530 Eight Avenue S.W.
Calgary, Alberta
T2P 3S8

Dear Mr. Ellam:

I have been asked to reply to your letter of November 1, 1990, addressed to the Office of the Honourable Marcel Masse, Minister of Communications, concerning the Department of Communications Client Procedures Circular CPC-2-0-03 - Municipal Consultation on Non-Broadcasting Antennas and Antenna Supporting Structures and its effect on radio amateurs. I understand that you act as Counsel for the Canadian Radio Relay League, Inc. (CRRL).

As stated in a notice, SMRR-002-90, in the Canada Gazette dated June 4, 1990, it is the intent of the Department to provide an opportunity for municipal authorities to comment on significant antenna structures. This policy includes amateur radio stations.

The foregoing not withstanding, the Department of Communications appreciates the long standing service of amateur radio operators within the community and the self-regulating nature of this service. As well, since an amateur licence permits the radio amateur to establish a fixed, transportable, and mobile radio station, many amateurs do not necessarily possess any equipment or are unaware of their antenna structure requirements at the time of licensing. Consequently, radio amateurs are not required to have the parameters of their specific installations individually approved and are not required to follow the declaration procedures in CPC-2-0-03.

Should radio amateurs decide to erect a significant tower or antenna installation, they are encouraged to consult with their local municipality to ensure that municipality concerns are addressed. The nature of the consultation is a matter of judgement for the amateur radio station licensee, given the highly variable nature of amateur radio installations.

In summary, the policy and procedure do not significantly effect amateur radio operators. The Department has always expected that they will erect their antennas taking into consideration their relationships with their neighbours, and environmental and land use factors. The method that they use to do this is at their discretion.

I hope the information provided will be useful in your dealings with the CRRL. I should point out that executive members of the CRRL have already met with us to discuss the matter, as have those of CARF.

Should you have any further questions, you may wish to contact Mr. Maurice Nunas, Director, Spectrum Management Operations. He can be reached at (613) 990-4932.

Yours sincerely,

for Robert W. Jones
Director General
Radio Regulatory Branch

Canada

Text of the DOC letter to CRRL Counsel Tim Ellam, VE6SH. The letter clarifies DOC position on CPC-2-0-03: amateurs do *not* have to follow the declaration procedures outlined in the CPC-2-0-03.

CRRL was certain that the CPC was never intended to be applied to pre-existing towers, and intervened in the case by contacting DOC Ottawa. At press time, latest word was that an understanding had been reached, and that the amateur would be able to keep his tower, no poll of neighbours required, and no conditions attached.

CRRL-CARF MERGER MEETING

❒ The CRRL-CARF Merger Committee met again in Whitby, Ontario, on December 2. The committee reviewed the constitution for the new single Canadian Amateur Radio organization, and created five study committees: administrative, legal, public service, membership services and publications. These study committees will formulate recommendations and report to the Merger Committee prior to a joint CRRL-CARF board meeting, expected to be held early in June.

ACROSS THE COUNTRY

❒ George Gorsline, VE3YV of Toronto , and Bill Lefler, VE3BWI of Windsor, were both nominated for CRRL Director, Ontario South Region. A balloted election will be held. Ballots will be mailed to all CRRL Full members in the Ontario South Region on January 1.

❒ For prefix hunters, a reminder: to publicize the 1991 Canada Winter Games being held in Charlottetown, Prince Edward Island, Canadian amateurs may use the following special prefixes throughout February: CG1–CG8 in VE1–VE8, VG1, VG2 and VG9 in VY1, VY2 and VY9 (VY9 is the special DOC prefix), and VO5–6 in VO1–2.

❒ Congratulations to Bernard McKay, VE1LN, who recently celebrated fifty years of ARRL-CRRL membership.

SOUTH OF THE BORDER

❒ According to FCC, in 1990, the US Amateur Service grew 6.1%.

❒ The US FCC has issued a Notice of Proposed Rulemaking which would codify its current policy of granting waivers for 13- and 20-wpm code tests on the basis of a doctor's letter. Many US amateurs—and the ARRL—believe that this arrangement is open to abuse. The current controversy centres on the speed with which FCC is moving towards a a final decision. It is widely reported that FCC is bowing to pressure from US President Bush who, apparently, asked FCC to exempt handicapped amateurs from high-speed code tests after he received letters on the matter from Jordan's King Hussein, JY1.

❒ The US FCC has denied four Petitions for Rulemaking related to AM double sideband with carrier emissions. One petition asked that AM be eliminated, while two other petitions asked that for AM, maximum power be 1.5 kW carrier output instead of 1.5 kW peak envelope power, as it was before the expiry of a "sunset clause" on June 2 of this year. In explaining its decision, FCC said that "deleting AM as an authorized mode of emission is inconsistent with the basis and purpose of the Amateur Service... the petitioners, however, do not persuade us that there is sufficient justification to raise the power limit."

❒ At press time, a Court of Appeals in Washington, DC, was hearing arguments from ARRL as to why the 1988 FCC decision to reallocate 220-222 MHz to the US Land Mobile Service should be overturned.

WARC UPDATE

❒ Technical foundations for WARC-92 are now being laid at a series of meetings conducted by CCIR, the International Radio Consultative Committee. CCIR is part of the ITU (International Telecommunications Union) structure responsible for making recommendations on technical and operating matters related to radio communications. A CCIR Joint Working Party met in Geneva on October 22–25 to draft sections of a report dealing with compatibility of various HF radio services. This report is particularly important to amateurs because of the various allocations to broadcasting and the Amateur Service at 7 MHz. ARRL Technical Development Manager Paul Rinaldo, W4RI, attended the meeting as part of the US delegation, and SP5FM participated as an IARU observer. At press time, a second meeting, this one dealing with the mobile and mobile satellite services, was being held in Helsinki.

NOTES FROM ALL OVER

❒ ARRL has denied a petition which would have made Gross Isle a new DXCC country. Gross Isle, located in the St Lawrence River near Quebec City, was a quarantine station during the nineteenth century. It is not part of Quebec, and like Sable and Saint Paul's islands, is administered directly by the federal government.

❒ Effective 1991 January 2, W1AW, the ARRL Headquarters station, will transmit code practice and CW bulletins on new frequencies in the 15- and 10-metre bands. The change is being made to avoid interference with AMTOR. New frequencies are 21.0675 and 28.0675 MHz.

❒ Dayton Hamvention® is no longer the biggest. In Japan, 59,000 radio amateurs attended Tokyo's Hamfair '90.

❒ JARL, the Japanese Amateur Radio League, advises that, as of March of last year, the number of licensed radio amateurs in Japan reached 1,027,000. Japanese radio amateurs represent about half of the world's total.

❒ New Zealand amateurs have been granted access to a new experimental band at 160-190 kHz. However, amateurs may use only 5 watts ERP on this band, and they must operate on a shared non-interference basis with other users.

❒ Listen for Royal Omani Radio Society station A43SR/MM aboard the yacht Fulk A-Salamah as it retraces the Silk Road maritime route from Venice, Italy, to Osaka, Japan. A special award is available for working this station on two different bands or using two different modes.

❒ PACSAT, the BBS function aboard OSCAR 16, is now operational. Special software is required to use this BBS. A description of the protocol appears in the Proceedings of the 9th Computer Networking Conference, held in London, Ontario, in September. Actual software is available through the Compuserve HAMNET, or from the Dallas Remote Imaging Group BBS at (241) 394-7438.

❒ In case you missed it, the STS-35 mission of the space shuttle Columbia with astronaut Ron Paraise, WA4SIR, and the SAREX-II Amateur Radio station lifted off on December 2. Coincidentally, the Soviet Union launched a Soyez Progress supply rocket carrying two cosmonauts and a Japanese television journalist about an hour after the launch of the Columbia. The US astronauts hoped to use Amateur Radio to contact their Soviet counterparts, headed for the space station MIR.

❒ In other space news, AMSAT-DL officials have learned that the launch of their RM-1/RUDAK 2 Amateur Radio satellite will be delayed until at least January 7. The satellite was supposed to be launched on November 29, and both the payload and rocket were ready, so why the delay? According to reports, the launch was held up until January so a particular government official could view it at his convenience!

❒ Congratulations to Dave Blaschke, W5UN, who recently worked VS6BI to complete the world's first moonbounce 2-metre DXCC. And congratulations to *QST*— 75 years young this December. ■

Silent Keys—

Conducted By Ray Staines, VE3ZJ

It is with deep regret that we record the passing of these amateurs:

VE2DR, Bill Skarstedt, Pointe Claire, PQ
VE3AJO, Wilf H. Brown, Scarborough, ON
VE3ETO, Tom M Maxwell, Brinston, ON
VE3EYU, Clarence Forbes, Vanleek Hill, ON
VE3LA, Cyril Linney, Windsor, ON
VE3RR, H. Reg Varcoe, Belleville, ON
VE3SDL, Len Stone, Kingston, ON
VE3UA, Brien O'Brien, Thunder Bay, ON
VE7ASA, Ron Summerhill, Ashcroft, BC

Note: Silent Key reports sent to *QST Canada* must include name, address and callsign of the reporter. To avoid unfortunate errors, reports are confirmed only through acknowledgement from the family of the deceased. Thus, those who report a Silent Key may not receive an acknowledgement from *QST Canada*. ■

Section News/Nouvelles des Sections

Conducted By Jack Strangleman, VE3GV

The CRRL Field Organization Forum

Reports invited: CRRL Section Managers (SMs) and their Section-level assistants coordinate traffic handling, emergency communications and bulletin service across Canada. Your SM (name and address appears on page 2 of this *QST Canada*) welcomes reports of individual and club activities for publication in this column. Activities do not have to be related to the CRRL Field Organization or to CRRL.

SECTION MANAGER ELECTION NOTICE

To all CRRL members in the Alberta Section: You are hereby solicited for nominating petitions pursuant to an election for Section Manager. A petition, to be valid, must carry the signatures of five or more CRRL Full members residing in the Alberta Section. It is advisable to have more than five signatures. Photocopied signatures are not acceptable and signatures must be on the petition. Petition forms, FSD-129-C, are available from CRRL Headquarters in London, Ontario, but are not required. The following form is acceptable:

..... (place and date)
CRRL Field Services Manager
Box 7009, Station E
London, Ontario N5Y 4J9

We, the undersigned CRRL Full members residing in the Alberta Section, hereby nominate ..... (name and call sign) as Section Manager for this Section for the next term of office: ..... (signatures and call signs) ..... (addresses with postal codes).

A Section Manager must be a resident of his or her Section and a licensed radio amateur holding a Canadian Advanced Amateur Certificate or equivalent, and have been a CRRL Full member for a continuous term of two years at time of nomination.

Petitions will be received at the CRRL Headquarters office until 1600 EDT 1991 March 08. If only one valid petition is received, the person nominated will be declared elected. If more than one valid petition is received, a balloted election will take place. Ballots will be mailed from CRRL Headquarters on 1991 April 1. Returns will be counted after 1991 May 20. A Section Manager elected as a result of these procedures will serve for a two-year term of office beginning on 1991 July 1.

You are urged to take the initiative and file a nominating petition immediately. —*Jack Strangleman, VE3GV, Field Services Manager*

REPORTS FOR OCTOBER 1990

Alberta: SM/STM/DEC: Bill Gillespie, VE6ABC; ASM: VE6AMM; SEC/TC: VE6AFO; OO: VE6TY. No report available this month.

British Columbia: SM/SEC: Ernie Savage, VE7FB. British Columbia Emergency Net (BCEN): Manager Ferdi, VE7EJU; NCS are Angela, VE7ANG; Ray, VE7BCL; Ralph, VE7OM; Ary, VE7BCF; Ian, VE7CSI; Wayne, VE7BVZ, Leonard, VE7VO; Tom, VE7BNI; and VE7EJU. NCS for RN-7, two sessions nightly, are VE7CSI, VE7ANG, VE7OM, VE7BNI and VE7EJU. These are the ones that have been carrying the duties. Additional volunteers are needed. British Columbia Public Service Net (BCPS, 3729 kHz) Manager Ford, VE7DDF reports check-ins: high–284, low–184, and total–6555. 284 check-ins was the highest yet with NCS none other than our own Bobby, VE7CBK. These higher totals are all the result of amateurs who recently upgraded. Many of then say "thanks" to DOC.Burnaby ARC holds its swap-'n-shop followed by news of the amateur world at 1930 PST. Listen on the Burnaby repeater, VE7RBY, 145.350 MHz (–).

Manitoba: SM: Bill Crooks, VE4JR; ASM: VE4IX; STM: VE4JA, SEC: VE4VR; NMs: VE4LB, VE4IX, VE4TE. On October 1, large numbers of Canadian amateurs were "grandfathered" into the ranks of Advanced amateurs. Congratulations to all making the transition. I am sure that these newcomers (some not so new at being a "ham") will enjoy their new operating privileges. We hope they will be welcomed by all who already have their Advanced licence, and that they will join in the activities. We also hope that with the easing of licensing requirements, and the new privileges for each level, that more people, young and old will express an interest in this great hobby. All of us, individuals and clubs, should set up facilities to teach prospective amateurs the theory and regs and move them through the 5-wpm and 12-wpm code and the the material for the Advanced level. The foundation poured for the radio museum in Austin, and the walls and roof up. Soon the museum will no longer be a dream—it will be reality. Hopefully, by the time you read this report, everything will be completed and in operation. Thanks to all who contributed, both physically and financially. Also, congratulations to René, VE4AAQ. On September 24, he completed a two-way 440-MHz ATV QSO with Bob, W0KCP, in Waroad, Minnesota, some 200 km away. René said that the video was P4–5 and the audio was A4–5, both very good for ATV. He hopes to continue, with more tests in November and December, with VE3JJA in Kenora and W0QQK in North Dakota. Keep up the good work, René.

Maritimes-Newfoundland: Acting SM: Carl Anderson, VE1UU; STM: Mel Lever, VE1VX; BM: Brent Taylor, VE1JH. Congratulations to the Halifax and Fredericton Amateur Radio clubs for their fine showing in 1990 ARRL Field Day. They were the only stations from the Maritimes-Newfoundland Section to place in the top 40 Canadian Field Day scorers, ranking fourth and fifth, respectively. Halifax scored 6264 points in Class 2A, and Fredericton 5548 points in Class 3A. By being the top Canadian Class 2A Field Day station, Halifax Amateur Radio Club retains the trophy which they sponsor jointly with Cowichan Valley (BC) Amateur Radio Club. I attended the Second Annual Greenwood, Nova Scotia, Flea-market in October. Attendance was good, and Richard Arnold from the Halifax DOC office gave a seminar on the new licensing structure, and on deregulation of mode subbands. Thanks to Greenwood ARC for hosting that event. I will be in the Soviet Union for ten days in November. I hope to visit the Krenkel Central Radio Club in Moscow, where I plan to drop a stack of QSL cards into "Box 88". I recently read the story of Ernest Krenkel in a first-hand account of the 1934 loss of the Soviet freighter *Chelyuskin* in the Chukchi Sea. The ship was crushed by Arctic ice as it tried to complete the northern sea route from Murmansk to the Bering Strait. Krenkel was the *Chelyuskin's* chief radio operator, and he was made a Hero of the Soviet Union for his part in the rescue of all but one of the 104 passengers and crew. As a tribute to him, the *Chelyuskin's* callsign, RAEM, was assigned to Krenkel personally after the rescue. I'll have more on my return.

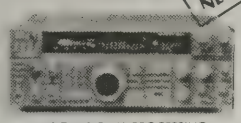
Ontario: SM: Larry Thivierge, VE3GT; BM: VE3GSA; SEC: VE3GV; STM: VE3CYR; TC: VE3EGO. It appears that DOC's Restructuring of the Amateur Service has been responsible for an increase in the number of check-ins to ONTARS. Net Manager VE3FQV advises that there were 11,485 check-ins during October, 1990, versus 8,572 in the same month in 1989. Looks like those who held the "old" Amateur certificate are taking advantage of their new privileges, and that's the way it should be. This month marks the 43rd anniversary of the founding of the Ontario Phone Net (OPN) which operates nightly at 3742 kHz at 1900 local time. VE3EFX reports that a new net called the Astro Net will be running on 3750 kHz at 2300 local time every Thursday. The Amateur Radio Society of Dryden executive includes VE3LMU, VE3BJD, VE3MEB, VE3NNX, VE3JHW, VE3MOR, VE3JJY and VE3IDJ. The group produces a nifty newsletter. Nice to hear Ben, VE3ORB, back on the traffic nets. Ben, first licensed as 3XD back in 1922, was a telegrapher. He and VE3SB get together on 40 metres for some landline Morse. Repeater VE3OSH recently celebrated 22 years of virtually uninterrupted service. It was one of the earliest repeaters in the region, and in fact, in Canada. There were not many repeaters operating at the time, only VE3RPT, VE3MOT, VE3NSR and W2EUP in Buffalo. VE3CYR has a new 286 computer and will be using his old PCjr for packet. K8CQF and WB8I from Saginaw, Michigan, gave a presentation at a dinner meeting of Algoma ARC. Topic: the ARRL National Convention to be held in Saginaw on August 23–25, 1991. VE3XJ is teaching the Basic amateur course to a group of fifteen DOC employees. Jim, who just confirmed Spratley on RTTY, has his RTTY DXCC totals up to 207/195. Amateurs in addition to myself heard working VS6AK on 20 metres: VE3EFX, VE3ET, VE3FKD, VE3HIR, VE3KHT and VE3PT. The old Musket Net has been brought back to life in Sudbury. It's a ragchew net, held every evening at 1930 local time on 144.600 MHz USB. I trust that everyone is enjoying the new gear that Santa left for them.

Quebec: SM: Harold Moreau, VE2BP; STM: VE2EDO; SEC: VE2LYC; BM: VE2ALE. Happy 1991 and best wishes to all. I was re-elected Section Manager for a two-year term starting on 1991 January 1. Dupuis le 1er novembre, le

Section News—continued on page 15

KENWOOD

TS 950 SD NEW

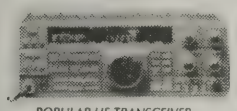


DIGITAL SIGNAL PROCESSING FOR THE CLEANEST TRANSMITTED SIGNAL

TS950S $3499

TH 27A MINI 2 METER HT $459

TS 440S/AT

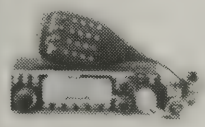


POPULAR HF TRANSCEIVER WITH OR WITHOUT AUTOMATIC TUNER

TH-77A $685

TH 75A DELUXE DUAL BANDER $550

TM-701A $519

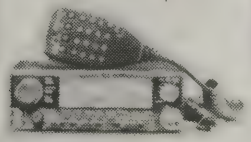


COMPACT 50 WATT 2 METER MOBILE

TM-241A $539

$369 TH 225A 5 WATT POWER STANDARD

TM 631/731A $839



DUAL BAND MOBILES

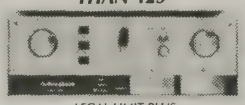
TM631A 2M/220 TM731A 2M/440

TEN-TEC

OMNI V

HAM BAND TRANSCEIVER GREAT RECEIVER

TITAN 425



LEGAL LIMIT PLUS AMPLIFIER

AMERICA'S BEST

cushcraft CORPORATION

R5 VERTICAL

A3S TRIBAND $459 $369

10, 12, 15, 17, 20 METERS NO RADIALS

AEA

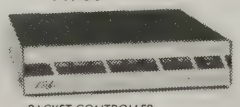
PK-232MBX $459

MULTI MODE CONTROLLER

2 Meter $95

ISOPOLE

PK-88 $179

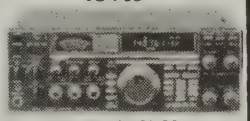


PACKET CONTROLLER

ICOM

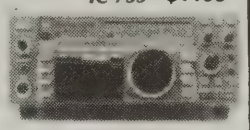
SIMPLY THE BEST

IC-765



COMPETITION GRADE

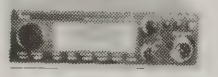
IC-735 $1199



PROVEN WINNER

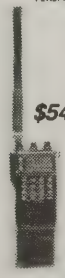
IC-228H $479 NEW

$519 IC-229H



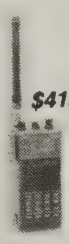
VERSATILE 2 METER MOBILE

$549



IC-24AT

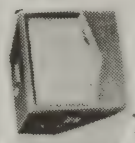
$419



IC-2SAT

VERY COMPACT HANDHELDS MULTI-FEATURED

CN-520 $135



MOBILE/BASE CROSS NEEDLE SWR/POWER METERS

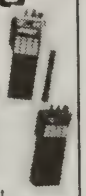
$135 CN-460M

Model	Freq. Range Int. Sensor	Forward Power	Connectors
CN-410M* $125	3.5-150 MHz	15/150 W	SO-239
CN-460M*	140-450 MHz	15/150 W	SO-239
CN-465M*	140-450 MHz	15/75 W	SO-239
CN-520**	1.8-60 MHz	200 W/2 Kw	SO-239

YAESU

FT-470 $459 DUAL BAND
- 2 Meter/70cm
- Multi Scanning
- 2.3 to 5 Watt Output

FT-411 $369 "MAXI" 2 METER HT
- 49 Memories
- Built-in PL Encode/Decode
- Up To 5 Watt Output



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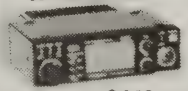
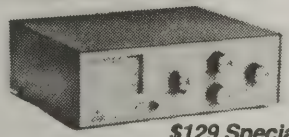


FT-212RH $449

45 WATT 2 METER MOBILE
- 18 Memories
- Receive 140-174 MHz



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300 Watts of All-Band Tuning

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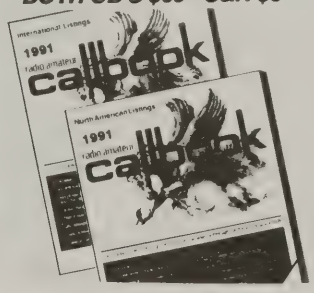
A front panel switch control allows you to switch between two coax-fed antennas (direct or through the tuner). You can also switch to a balanced line or wire antenna. The BYPASS position allows you to switch to a dummy load (such as AEA's DL-1500 dry dummy load) or a direct connected coax antenna. In the BYPASS position, COAX 1 OUT or COAX 2 OUT can be selected so that the tuner is bypassed, but not the meter circuit.

The ET-1 features a precision dual-movement meter to simultaneously monitor power and SWR.

Unique engineering designs have made AEA one of the leading innovators in the amateur radio industry. That same quality and superior technical support make the ET-1 your best deal for an antenna tuner.

1991 CALLBOOKS

NA CB $39 INT CB $39
BOTH CB'S $69 S&H $5



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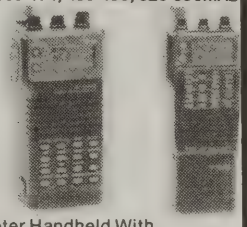
IC-2SAT Rx Freq Coverage 108-174MHz

IC-24SAT Rx Freq Coverage 108-174; 430-490; 820-950MHz



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  General coverage receiver tunes from 100 kHz—30 MHz. Easily modified for HF MARS operation.
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  Super efficient cooling permits continuous key-down for periods exceeding one hour. RF input power is rated at 200 W PEP on SSB, 200 W DC on CW, AFSK, FM, and 110 W DC AM. (The PS-50 power supply is needed for continuous duty.)
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  A built-in SSB filter is standard. When an optional SSB filter (YK-88S or YK-88SN) is installed, **dual** filtering is provided.
- **AMTOR compatible**
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- **100 memory channels**
  Frequency and mode may be stored in 10 groups of 10 channels each. Split frequencies may be stored in 10 channels for repeater operation.
- **TU-8 CTCSS unit (optional)**
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  IF shift, tuneable notch filter, noise blanker, all-mode squelch, RF attenuator, RIT/XIT, and optional filters fight QRM.
- **MC-43S UP/DOWN mic. included**
- **Computer interface port**

Optional accessories:

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- PS-50 heavy duty power supply
- PS-430/PS-3D DC power supply
- SP-430 external speaker
- MB-430 mobile mounting bracket
- YK-88C/88CN 500 Hz/270 Hz CW filters
- YK-88S-88SN 2.4 kHz/1.8 kHz SSB filters
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- TU-8 CTCSS tone unit
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TH-27A/47A

2 m and 70 cm Super Compact HTs

Here is a great new addition to Kenwood's HT family — the all new TH-27A for 2 meters and TH-47A for 70 cm! Super compact and beautifully designed, these pocket-sized twins give you full-size performance.

- **Large capacity NiCd battery pack supplied.** The standard battery pack is 7.2 volts, 700 mAh, providing extended transmit time with 2.5 watts. (TH-47A: 1.5 W.)
- **Extended receive coverage.** TH-27A: 118—165 MHz; TH-47A: 438-449,995 MHz. TX on Amateur bands only, (TH-27A modifiable for MARS/CAP. Permits required. Specifications guaranteed for Amateur bands only.)
- **Multi-function scanning.** Band and memory channels can be scanned, with time operated or carrier operated scan stop.
- **Frequency step selectable for quick QSY.** Choose from 5, 10, 12.5, 15, 20, or 25 kHz steps.
- **Built-in digital clock** with programmable timer.
- **Dual Tone Squelch System (DTSS).** Compatible with the TH-26AT Series and the TM-941A Triple bander, as well as other Kenwood series transceivers, this selective calling system uses standard DTMF to open squelch.
- **Five watts output** when operated with PB-14 battery pack or 13.8 volts.
- **T-Alert for quiet monitoring.** Tone Alert beeps when squelch is opened.
- **Auto battery saver, auto power off function, and economy power mode extends battery life.**
- **DTMF memory.** The DTMF memory function can be used as an auto-dialer. All characters from the 16-key pad can be stored, allowing repeater control codes to be stored!
- **41 memories.** All channels store receive and transmit separately for "odd split."
- **DC direct in operation.** Allows external DC to be used (7.2 – 16 volts). When external power is used, the batteries are being charged. (PB-13 only.)

- **Automatic offset selection (TH-27A).**
- **Direct keyboard frequency entry.** The rotary dial can also be used to select memory, frequency, frequency step, CTCSS, and scan direction.
- **CTCSS encode/decode built-in.**
- **Supplied accessories:** Rubber flex antenna, battery pack, wall charger, belt hook, wrist strap, dust caps.

Optional accessories:

- **BC-14:** Wall charger for PB-13, 14
- **BC-15:** Rapid charger for PB-13, 14
- **BH-6:** Swivel mount
- **BT-8:** Six cell AA Alkaline battery case
- **HMC-2:** Headset with VOX and PTT
- **PB-13:** 7.2 V, 700 mAh NiCd pack
- **PB-14:** 12 V, 300 mAh NiCd pack
- **PG-3F:** DC cable with filter and cigarette lighter plug
- **PG-2W:** DC cable
- **SC-30:** Soft case
- **SMC-31:** Standard speaker mic
- **SMC-32:** Compact speaker mic
- **SMC-33:** Compact speaker mic with controls
- **WR-2:** Water resistant bag.

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*These maps can be shipped together. Add $3.50 postage only once per order.

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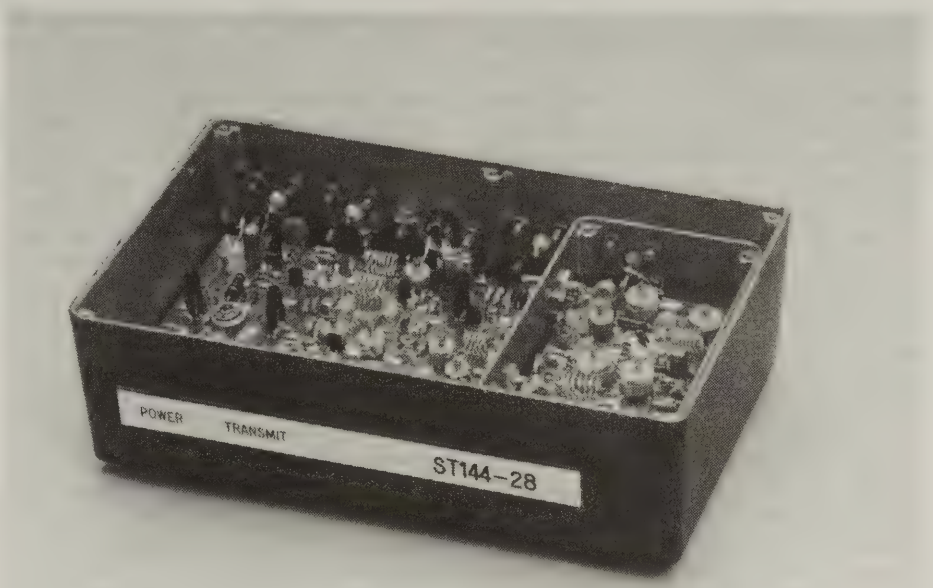
New Products/Nouveaux Produits

SINCLABS 144- AND 220-MHz TRANSVERTERS



The other day, a large carton appeared at my door. Inside I found two mysterious black boxes called transverters. *Transverter* is an acronym for "transmit/receive converter", essentially a linear transmit and receive mixer that, on transmit, takes your HF signals and translates them to one of our many VHF bands, and on receive, takes VHF signals and translates them back to HF. A transverter allows you to use all the bells and whistles on your HF rig on VHF. Transverters have been around for many years. The first one I used, back in 1969, was a 144-MHz unit using vacuum tubes. It put out all of five watts. Since then, I have built my own transverter for 220 MHz (1971), using it to make the first 220-MHz SSB contacts between Canada and the US, and a transverter for 144 MHz. Transverters have also been constructed by Peter, VE3EMS, Bill, VE3DXJ, Don, VE2DFO, and many others.

Commercially, Hallicrafters, Collins Radio and others designed and sold transverters, so the technology is not new. What is new though is that today's transverters have super low noise receivers, and very high output power on transmit. A shining example is the first transverter to be designed and marketed by a large Canadian company.

The Sinclabs (Sinclair Radio Labs) ST144-28 and ST220-28 are based on designs by Hans Peters, VE3CRU, who built and sold over three hundred 220-MHz transverters during the early 1980s. A detailed description follows:

Receiver

The receiver front end consists of an NE251 low noise GaAsFet device with a two pole bandpass filter ahead of it. The claimed noise figures of 2 dB is easily met using this device. Typically, the 2 dB figure is "significantly exceeded'. The mixer is an 3N204 FET which feeds the resulting 28-MHz IF to the HF receiver port through a lowpass filter.

Transmitter

The transmit side takes your 28-MHz drive signal, anywhere from a 100 microwatts to a maximum of 500 milliwatts, and hetrodynes it to 144 MHz (or 220 MHz) via a balanced mixer composed of a pair of 3N204's. The resulting signal is filtered and amplified to a minimum of 15 watts of clean output.

Antenna Switching

If your HF transceiver does not have separate transmit and receive jacks you will have to install a relay to switch between the IF ports of the transverter. However, on the VHF end of things, the Sinclabs unit uses PIN diode switching between transmit and receive. Thus, if you are running barefoot or with an RF-switched amplifier you won't need any other VHF RF relays. If you need to have separate 144-MHz (or 220-MHz)receive and transmit lines, the BNC connectors are there, and all you need to do is move one jumper to change the configuration.

General Comments

On-the-air tests of the 144-MHz transverter indicate that it is a very economical way to get on VHF, whether used for SSB, CW, packet or whatever. The linear nature of the system will allow any mode to be mixed from HF to VHF. Power output is more than adequate for driving amplifiers, and is good enough for most local ragchewing.

The receiver needs a little work to overcome some strong-signal overload problems found in a RF-polluted area like downtown Toronto, but that can be overcome with additional filtering at the receive input, and a reduction in the IF gain. Bob, VE3BFM of Sinclabs, promises some design changes to improve receiver performance in the near future, but if you live in an area where crowding above and below 144–148 MHz is not too bad, you won't have to worry.

Overall, the Sinclabs transverter significantly exceeds its design specifications in terms of transmit power and receiver noise figure. The unit is well packaged, with green and red LEDs to indicate receive and transmit modes. The well designed set of instructions will help you with the hook up. If you want to run QRP and save a few additional bucks, Sinclabs has the ST144-28L "half-watt output" transverter as well. And if you want to cover FM, talk to Bob regarding using a different local oscillator frequency and a different IF range (i.e. 144–148 MHz requires a 26–30-MHz IF).

In the works for later this year: transverters for 50 MHz and 432/435 MHz. We'll announce these in *QST Canada* as they become available. *—Dana Shtun, VE3DSS* ■

Specifications

Dimensions: 2.5" h X 7.375" w X 5.5 " d

Weight: 1.92 lbs

Connectors: power and PTT: 5-pin DIN; RF connectors: BNC female

Frequency range: ST144-28: 144–146 MHz with a 28–30-MHz; ST220-28: 220–222 MHz with a 28–30-MHz IF)

Power output: ST144-28: 15 watts; ST220-28: 10 watts

Spurious responses: –40 dB typical

Price class: $300

In addition to the transverters, Sinclabs is developing an RF switch box that will allow you to connect up to four transverters to your HF rig, as well as providing RF switching at the IF, variable delay times and more. If you are interested, drop a line to Sinclair Radio Labs, 85 Mary St, Aurora, ON, L4G 3G9, Tel (416) 841-0624, FAX (416) 841-6255. ■

Conducted By Dana Shtun, VE3DSS
500 Willard Ave, Toronto, ON M6S 3R6
Tel (416) 763-1761

Looking Ahead

As we move into 1991, there seems to be an ever-growing series of issues facing us on VHF and above. Some are external and others are internal, and each will require a certain finesse and a lot of time if we are to deal with all of them properly.

Among the external issues is a DOC document, RSS-210, which fortunately is still in draft form. The purpose of this document is to lay the groundwork for the operation of wireless devices throughout the RF spectrum, including our amateur bands. CRRL has forwarded a preliminary submission on this document, with guidelines as to how and where these devices should be allowed to operate.

DOC has released RIC-76, *Provisional Technical Requirements for Spread Spectrum Systems Operating in the Band 902–928 MHz*. CRRL is preparing comments to supplement comments made to DOC in 1988 in response to SP-896 which dealt with the 33-cm band.

We will continue to monitor developments and generally look out for our VHF/UHF bands through the CRRL VHF/UHF Advisory Committee (VUAC). For those who are not familiar with VUAC, this committee looks after band planning, repeater coordination where none exists, and serves as a forum for discussing issues that affect us all. If you have a particular concern regarding interference, contesting, band planning or regulatory matters, or if you have a technical question, drop a note to VUAC. In Quebec, your VUAC team includes Mike, VE2DUB, Stu, VE2FUT, and Don, VE2DFO. In British Columbia, it includes Lionel, VE7BQH.

Recently, yours truly attended a presentation where DOC outlined its plans to improve spectrum management up to the turn of the century. Over the next nine years, some fairly radical changes may take place in how DOC divides up the radio spectrum. CRRL will be preparing comments and will keep you informed.

As you can see, CRRL volunteers are working hard to protect your interests. It's part of the organization's obligation to you, the individual CRRL member. Remember that your rights as individuals, whether in Amateur Radio or in daily life, are gifts to be fought for. Just look at what happened in Eastern Europe when this was forgotten.

It's a matter of historical record that CRRL and IARU have been fighting for our VHF/UHF bands since we got 56–60 MHz at Washington in 1927, and 112–118 Mhz and 224–230 MHz at Cairo in 1938. Remember that we have only ourselves to rely on to maintain our bands. No one else will stand up and speak for us. Something to think about. —*VE3DSS* ■

ACTIVITY REPORTS

50 MHz: October 17 brought news on 28.885 MHz that 9L1US had worked a number of VK stations longpath, beaming over North America. On October 19, the V51E beacon was heard in Europe. 9L1US worked into Germany, Austria and Italy, and between 1435 and 1450 was working into W1 land. Later that day, the Japanese 6-metre operators were treated to an opening to a small region around San Diego.

VE3DSS received confirmation of a November 1989 contact with Roy, G3GJQ/5N0 (JJ16), and was glad to hear that Roy had worked two other Canadians. He ran 100 watts to a 5-element yagi at 85 feet while in Lagos, Nigeria.

Monday, October 22 found conditions just below 6 metres very good indeed, with Gord VE3KKL and a number of other eastern stations hearing very loud New Zealand TV video. Tuesday, October 23, was a good day for Monty, VE3EVW (EN93), who managed a QSO with Z23JO in the morning.

News gleaned from the 28.885-MHz 6-metre coordination frequency indicated that on October 25, ZK3F may have heard west coast stations, at 0110 UTC, on 50.115 MHz.

As November rolled around, we started receiving excited remarks about DX. Mike, VE3FGU, was heard working HC2FG on November 4. Peter, VE3EMS, also heard the Equadorian. He had rapid QSB on his signal, despite having his antenna sitting on the roof.

Yours truly happened to be QRV with the big boomer and kW when the band opened on the morning of November 11 to PYØFF. Flux levels were sitting around 193. Signals built on 50.110 MHz CW until they were so strong that he QSYed to 50.115-MHz SSB. Among those who worked him: VE3DSS, VE3ONT, VE3ASO and VE2DFO. PYØFF's QSL manager is W9VA, or you can QSL direct. A little while later, we heard the boys in Rochester madly working 7Q7RM in Mali, Africa. Alas, the DX gods did not let 7Q7RM's signal propagate into Hogtown.

November 17 was a little more interesting. The solar flux was sitting at around 193 with a bit of flare activity to boot. 1420 UTC was a magical time for 6-metre DX. At that time, the Italians reported hearing the VO1 beacon, and VE1YX and company were working into Italy, and Africa. In Ontario, VE3FGU (FN04) and VE3DSS (FN03) found that the 50.081-MHz HC8SIX beacon on Galapagos Island was a solid S9. Ah, dreams of working the CEØZZ group danced in our heads as we frantically called CQ to the southwest to no avail. With the beam south, calls on 50.100-MHz CW at 1440 UTC brought a quick contact with TI2HL who came out of the noise for a few moments. About ten minutes later, at 1450 UTC, we worked HC2GE who was running one watt and was well over S9, We also worked HC5K. Things were fairly quiet. When I turned my beam east to look for those elusive Italian stations around 50.155 MHz, I heard VE3FGU wrapping up a QSO with OA8ABT in Eastern Peru. We had dropped OA8ABT a note last year asking him to listen for Canadians, and there he was calling for VEs. Naturally we called him and made a contact. We hope that other DX stations will try to remember to look for Canadians prior to or during those immense American pileups and their associated QRM.

On November 18, up Montreal way, Don, VE2DFO, and company were working DX including 9L1US in Sierra Leone. Incidently, Stu VE2FUT has replaced his old IC-551 with a TS-680 which he says works much better.

The Sporadic-E (Es) season made an early appearance this year, with reports of QSOs with stations in Florida flooding in during the last two weeks of November. November 27 brought KA3B/C6A (FL16) into VE3WCB's QTH for an hour between 2330 and 0030 UTC. November 28 found even more DX, as Clarke, home nursing his bad knee, worked all grids in Florida, and TI2NA as well. Later that evening, VE3BGH and VE3DSS worked KA3B/C6A around 0024 UTC. Cuban station CO2CB was heard working stations as far north as Ohio. In addition, Florida stations were working short skip, indicative of higher MUFs. Close monitoring of 144.2 MHz showed no Es into Southern Ontario. The band watch continues.

144 MHz: Dennis, VE3ASO, ran a couple of skeds during the EME contest weekend, and worked W5UN on a horizon shot. Once he finished, he moved up the band a bit and called CQ at random. Dennis reported hearing two stations calling at the time, but he was unable to complete a contact with either of them.

CRRL Fall Sprint activity was fairly light this year. Among those missing was yours truly, who was occupied studying for a night school test. However, look out in January!

Dick, VE3FAC, continues to work on his VHF system. He has installed his prop-pitch motor at the base of his 60-foot Trylon tower and is in the process of running a pipe up through to the top. He has to build some lateral and thrust bearings for a couple of points along the pipe to keep things stable. He reports that his high voltage supply is running fine. Look out for him on EME during the summer.

Speaking of EME, Tony, VE3DIR, is going the lunar route to break that barrier of 39 states that he has been sitting on for a few years. Tony held the high Canadian total for states for

that he has been sitting on for a few years. Tony held the high Canadian total for states for almost 20 years, and now with two Cushcraft boomers and azimuth and elevation control, he should be able to get very close to that magic goal of 50 states.

Another EME enthusiast, Ted, VE3BQN, (FN04) worked the following stations on October 13–14 with his 8-yagi array: DJ7UD, SM4GVH, WBØQMN, N8AM, OE5JFL, HGØHO, OH5IY, EA2LU, PA2CHR, G4SWX, GMØEWX and WD5AGO. Ted says that he likes 144-MHz EME because there is worldwide activity and because there is less libration and polarization fading than on 432 MHz.

On a slightly larger scale, using 48 KLM yagis, Dave, W5UN, cracked the DXCC barrier on 144 MHz! Dave made his first EME QSO in 1982 with K1WHS. His last few contacts included VS6BI, W6JKV/J79, CEØZZZ and 9M8SEA.

Incidently, VS6BI was inspired by Dave's presentation at the Nordic VHF Conference in Sweden two summers ago. When he returned to Hong Kong, he began work on an EME station which culminated in a QSO with Dave on October 28. Congratulations to Dave. He's certainly an inspiration to the rest of us.

Back on earth, Len, VE3BGH (FN03), advises that the Gaslight Net which meets at 2200 local time on 144.240 MHz, has passed the 120 check-in mark. Stations like VE3NNA north of Sudbury and VE3AGB on Manitoulin Island have called in recently. If you have 2-metre SSB or CW capability please check into this net. Let's crack 200 check-ins this year!

432 MHz: From Winnipeg, we hear of interesting developments with respect to the USAF radar operating just across the border. Apparently the US military has shifted its operation up the band to avoid interference at 432 MHz. It looks as if our international moonbounce operations will be able to continue, thanks a willingness to coordinate.

Ken, VE6AFO, sent along some pictures of his magnificent 432-MHz EME array. His yagis are fully steerable in azimuth, elevation and polarity. I guess Ken won't miss anything, unless he falls asleep in the middle of the night. No faraday rotation to lay the blame on, eh, Ken?

Ted, VE3BQN, lost part of his 432-MHz array to a wild wind in late October. Not to be off the air however, he quickly rebuilt the system, using a bunch of K1FO yagis from Rutland Arrays. Incidently, Ted wants everyone to know that his computer BBS, "The Health Professional's BBS" with Ham Radio Conference, can be reached at no charge from Orillia.

1296 MHz: Clarke, VE3WCB (FN03), is now QRV with 35 watts. He is active on 1296.1 MHz every evening at 2230 UTC, calling CQ in various directions. Clarke's activity has sparked interest in Rochester, New York; Cleveland, Ohio; and in southern Ontario. If you have 23 cm capability, please call Clarke on any mode!

C6AFR, "BAHAMA MAMA IN THE JUNE CONTEST RUMBA"

Ted, WA4VCC, sent me a complete rundown of the C6AFR DXpedition that put the Bahamas on the DX map for many 6-metre operators. He writes that "Five members of the Carolina DX Association and their XYLs ventured to the Bahamas in hopes of favourable conditions for the June VHF Contest. The odds, of course were in their favour, but never a sure bet [Amen—*VE3DSS*]. The group arrived at Treasure Cay on Great Abaco Island (FL16) on the Wednesday before the "test". Antennas went up for 6 and 2 metres, 70 centimetres, Oscar 13 and 10–20-metres. The gear consisted of two FT-736Rs, various bricks and a FT-757GX for HF.

The group had received the specially assigned call, C6AFR, for its stay. Special thanks to the Bahamas Telecommunications Corporation for issuing this C6 call.

Bingo! On the morning of Thursday, June 7, the 6-metre band opened to the eastern half of the US, and at the same time the first 2-metre contact was made with a North Carolina station via meteor scatter. On Thursday afternoon C6AFR conducted pileups on Oscar 13 and on the 17-metre band.

It was Saturday morning when all the fun began. Although 6 metres had calmed down a bit by the time the contest started at 1800 UTC, the first, second, third, eighth, ninth and tenth US call areas were still in there, as were the first, second and third Canadian call areas! On Sunday morning, the band opened at 1100 UTC and stayed open most of the day, single hop Es only. The last QSO in the contest was a new multiplier, Louisiana, with two minutes left to go.

During its six-days of operation, C6AFR made over 700 QSOs on the VHF/UHF bands, a couple of hundred on Oscar 13 and a logbook full of QSOs on HF. Operators were AA4R, AA4SC, K4MQG, KB4SCE, WA4UNZ and WA4VCC. QSL manager for the C6AFR operation is K4MQG.

LISTENING BELOW 50 MHz

There are a number of ways that one can listen below 50 MHz for video carriers and commercial signals. The cheapest is still an outboard converter and tuneable IF. Converters can be purchased from outfits like Spectrum International for around $US 80. Alternately, schematics can be found in many magazines, showing you how to homebrew a converter. Other options include using scanner radios, tuneable military gear, modified HF receivers, or a used transceiver like a Drake TR-6, or SB-110 that can be crystalled for 48–50 MHz. Of course you could just go out and buy a new ICOM or Kenwood transceiver or wide-coverage receiver, but that would be too easy and too expensive! Incidently, a converter and a portable radio are also useful for DX listening while on vacation, for tracking down your neighbour whose cordless phone transmissions have drifted above 50 MHz, or for finding that leaky CATV lead.

TROPO NEWS

Tropo was good on October 13–14. VE3WCB worked a number of W4 stations in EM85 and EM86. On Sunday, the opening continued until at least 2 p.m. The high point of the opening was VE3ASO's spectacular contacts with W4GJO in Georgia on 144, 220, 432 and 1296 MHz. Dennis runs 100 watts on 1296 and Grid, W4GJO, was running just 10 watts. Grid's 1296-MHz signal, according to Dennis, was "thin" but in there. A lack of stations during the opening prevented super DX being worked on 903 MHz. November 22 brought more tropo delight as detailed in the band reports above.

JANUARY VHF SWEEPSTAKES

The ARRL January VHF Sweepstakes starts at 1900 UTC on January 19, 1991 and ends at 0400 UTC on January 21st UTC. Please send complete log to ARRL, 225 Main Street, Newington, CT, 06111. For security, send your log by *registered mail* within 30 days of the end of the contest, as the post office still manages to delay or lose some entries.

To be eligible for the new Canadian Regional Awards (there are Eastern, Central, and Western Canada award categories) sponsored by the Toronto VHF Society, send a photocopy of your log to VE3DSS. Remember that we must have your log two weeks after the end of the contest.

The 41st Annual "Post-Contest Do" will be held at VE3WCB's QTH on 1991 February 2, 1400 local time. If you are in town, please drop in. If you are not on our mailing list, please drop us a note.

FM NEWS

VE3RPT has some new antennas for its UHF links, a new 60-foot tower for the 6-metre repeater, and some new hardware. Canada's oldest repeater club continues to grow and prosper. At the recent fleamarket in Newmarket, the TFM boys managed to sign up 23 new members. Now, TFM's technical committee is hard at work planning for major hardware upgrades and improvements for 1991. ■

Section News—continued from page 9

babillard VE2ED est QRT. A tous mes meilleurs souhaits pour l'année 1991. Félicitations à VE2CAM (St-Hyacinthe) pour leur classement lors du Field Day 1990, et aussi à VE2FC (Sherham).

Saskatchewan: SM: Bruce Rattray, VE5RC. It is my sad duty to report that Norm Thompson, VE5CO of Moose Jaw, became a Silent key on October 30. Saskatchewan CRRL officials held a meeting in Regina on November 3, enjoying breakfast with many area amateurs at the usual Saturday morning get-together at a local restaurant. Regina ARA's radio course is going well. It has already produced several new amateurs with more to follow. A Saturday morning course for ladies only is being comtemplated for the New Year. A large number of amateurs were active from Saskatchewan as they joined in the CRRL QST QSO Party during the weekends of November 3 and 10, putting VE5QST on the air. Many thanks to VE5s FY, JML, GHC and RC on phone, and VE5s ABF, EE, AEO, KZ and BWS on CW. QSL via VE5RC. Saskatchewan Bulletin Managers, Gord, VE5GHC, is looking for stations interested in picking bulletins off packet and reading them on the air in their local areas. In Moose Jaw, the Hallowe'en Patrol was active with VE5s FY, MW. QN, JAL, NG, AQ, XC, AFU, IL, CX, RQ, MML and EC. Prince Albert also had a Hallowe'en Patrol with VE5s BCS, VW, EG, EB, DMN, TC, YH, BF, XV, XZ and YF participating. Anyone with concerns or questions re CRRL, please don't hesitate to contact any CRRL official directly for help. Best wishes for a Happy New Year from Bruce and Bonnie. 73! ■

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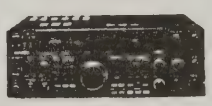

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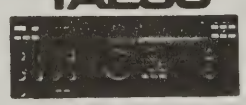

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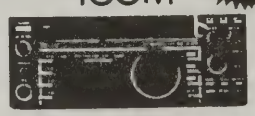

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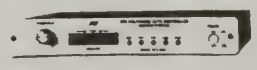

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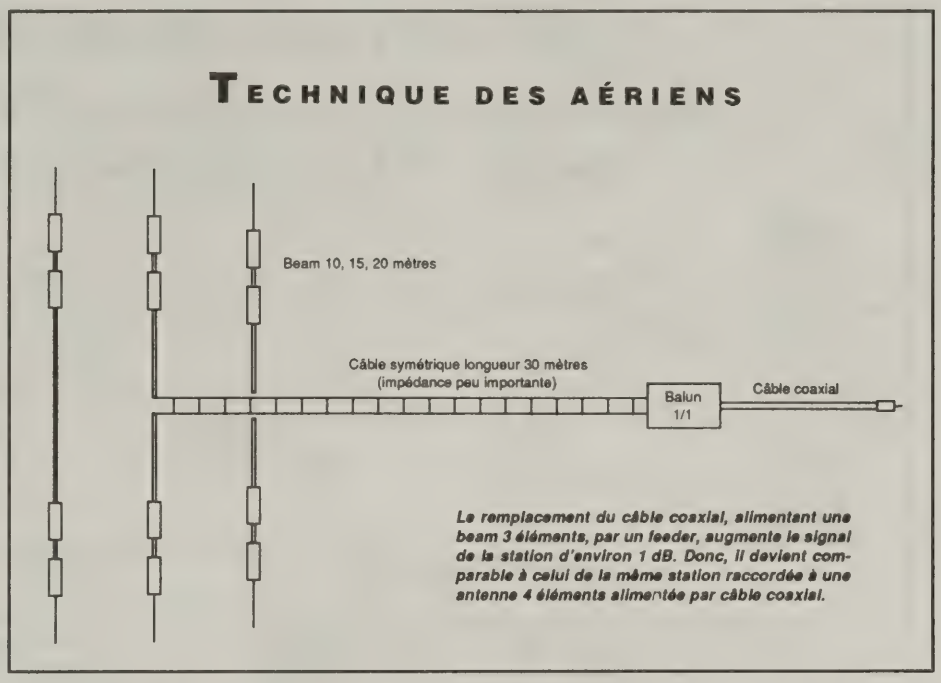
Picking up an Extra dB

Here's a neat idea from the French journal, *Megahertz*. Many amateurs go to great lengths to pick up an extra dB transmit and receive. According to *Megahertz*, the magic length is 30 metres—30 metres of low-loss open wire line to replace 30 metres of coax to a 20/15/10-metre beam.

Why 30 metres? On a transmission line, impedances repeat every half wavelength. 30 metres is three half wavelengths on 20, four half wavelengths on 15 and six half wavelengths on 10.

What impedance should the open wire line be? It doesn't matter. Just be sure to compensate for the velocity factor of the line. Typical velocity factor for open wire line is 0.95–0.975, bringing the actual length down to 28.5–29 metres. When you get the length right, your beam should load up just as before. —*VE3GRO*


TECHNIQUE DES AÉRIENS
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Câble coaxial
Le remplacement du câble coaxial, alimentant une beam 3 éléments, par un feeder, augmente le signal de la station d'environ 1 dB. Donc, il devient comparable à celui de la même station raccordée à une antenne 4 éléments alimentée par câble coaxial.

Fig 1—Replacing 30 metres of coax with 30 metres of open wire line will pick a dB or so.

THE EASY PATCH REVISITED

"The Easy Patch" by Frank Burke, VO1BZ, (1990 October *QST Canada*) is a novel approach to phone patch design. However, there are a couple of points related to interface with the telephone line which might cause difficulty.

Nominal DC potential on a telephone line is 48 volts. In practice, it is closer to 50 volts. If a subscriber is far from a telephone office, it is often as high as as 96 volts. These voltages can be measured across the line when the phone is hung up. Because of hazards of the outside world (lightning, power line crosses), protectors are often installed on the line to prevent high voltages from causing a serious problem. Older versions are designed to shunt energy to ground when voltages exceed 500 volts or so.

For safety reasons, in the Easy Patch, input capacitors C1 and C2 should have a rating of at least 500 volts, and preferably 1000 volts, not 100 volts as specified.

The Hammond 140 series transformers suggested by the author have a breakdown rating of about 400 volts RMS or 560 volts peak. Transformers with a higher breakdown voltage might be advisable. Telephone line current can be as high as 80 mA near a telephone office. The transformer winding must be able to carry this current without saturating the core. Many high quality transformers will saturate with this much current flow.

Concerning transformers, it is advisable to terminate the telephone line in an impedance in the range of 600–1000 Ω. While local calls would probably not be affected, long distance calls could be, because of reflections and echo effects due to line mismatch at the phone patch. The greater distance, the greater the delay in the reflected signal, and the more distracting and annoying the echo.

Finally, flipping switch S1 from one transformer to another momentarily interrupts the line current. This can produce a loud pulse in a nearby caller's ear. If the caller's telephone has features like call waiting or call conferencing, this pulse could activate these features with strange results. The caller could disappear and reappear every time the switch was operated. It would probably be safer to use a single coupling transformer and do the transmit/receive switching at the transformer secondary.

I believe these minor changes will result in a more reliable and effective Easy Patch. —*Ernest Moore, VE3ZZ, Nepean, ON* ■

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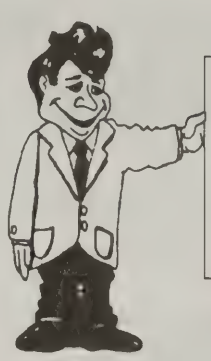

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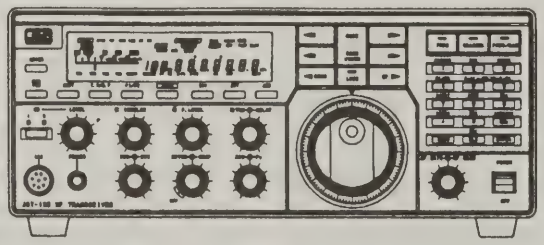

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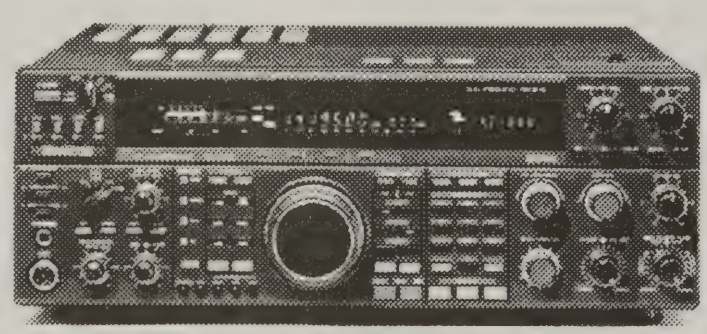

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Windsor Emergency Exercise

Bill Lefler, VE3BMW, sent in a most interesting report on a major disaster exercise: Operation Windstorm. This exercise was conducted in September by the Windsor-Essex Ad Hoc Disaster Planning Committee. Here are excerpts from Bill's report:

"Emergency services in Windsor and Essex County were at an all time low. In the latter part of 1989, an ad hoc committee was formed to re-establish awareness of potential disasters and how to deal with them. The committee had representatives from all of the area's emergency response agencies including police, fire ambulance and hospitals. There was a feeling that Amateur Radio should be an active participant. Thus Bill, VE3BMW, joined the committee, along with Reg, VE3GKB, and Bob, VE3PJF.

"The committee decided that an exercise would be held in late September. It would include simulated emergencies at Windsor Airport, two locations in the city itself, and one in the adjacent town of Leamington. The airport disaster would be a air crash with 47 casualties, some of them fatal. There would be three tornado touchdowns with 20 casualties at each of the Windsor locations, and 30 casualties in Leamington.

"The exercise began at 1100 with a weather alert from Environment Canada. This activated the Canwarn Net, placing operators on a "condition green" alert. At 1500, action began at the airport with ARES ready, bodies scattered about and flames at a planned burn at a remote spot in the airfield. Emergency teams from the airport and the local fire, police and ambulance services responded, along with medical triage teams and other support agencies. At 1510, the second alarm was received. There was a tornado at Memorial Park in Windsor. At 1515, a third alarm was received for the tornado in Leamington. The last alarm, at 1520, was for the second tornado in Windsor. All agencies responded effectively to these alarms. The Canwarn control station, operating from the airport, assigned ARES operators to all sites. Emergency stations were established at four hospitals, the airport emergency control centre, the three sites in Windsor and Leamington, and the site command posts. The police departments declined ARES assistance. This gave them a problem, however, since they could not communicate with each other. As a result, the RCMP, the Ontario Provincial Police and the Windsor City Police each went their own ways.

Shortly after, when the exercise was in full swing, the ambulance dispatcher in Windsor decided to test the capabilities of ARES. Net control, VE3WHT and VE3FEX immediately started passing ambulance service traffic, mostly consisting of triage data from the hospitals and morgue back to ambulance dispatch.

"The exercise demonstrated to local agencies the value of Amateur Radio in civil emergencies. At the debriefing session, our ARES group presented a number of recommendations. Praise from the agencies was echoed in local radio and newspaper reports. Much of the credit for the success of this exercise must go to the 27 amateurs who participated, including VE3GKB and VE3PJF, the overall coordinators."

NANAIMO ARES

Wilf Moorhouse, VE7US, is the Emergency Coordinator (EC) for the Nanaimo

Field Organization Reports October 1990

CRRL Section Emergency Coordinator Reports

Reports were received from the following SECs (DECs and ECs reporting to SECs are listed in brackets) denoting a total ARES membership of 1030.

Reporting	ARES Members
VE3GV (VE3s AFP, EFX, FFD, GNW, JJA, LPM, OVV, SV, TNL)	604
VE4JR	56
VE6AFO	265
VE7FB	105

CRRL Section Traffic Manager Reports

Call	Orig	Rcvd	Sent	Dlvd	Total
VE1ALU	1	8	8	1	18
VE1BTV	0	10	8	0	18
VE1YS	0	4	7	0	11
VE1DLC	0	4	2	3	9
VE1CRS	0	3	0	3	6
VE1HJ	4	2	0	0	6
VE2GOP	0	56	0	56	112
VE2BP	2	16	18	17	53
VE2WH	1	14	11	21	47
VE2JN	1	8	3	5	17
VE3ALE	0	1	0	1	2
VE3CYR	0	75	25	3	107
VE3ORN	0	51	40	12	103
VE3BDM	0	70	22	1	93
VE3BCZ	7	31	38	4	80
VE3ISD	0	33	44	1	78
VE3GNW	0	32	42		74
VE3GSQ	0	41	32	0	73
VE3DVE	0	26	31	0	57
VE3GT	0	20	30	2	52
VE3AJN	0	9	10	0	19
VE3KCZ	1	7	3	5	16
VE3NVJ	0	6	6	3	15
VE3CVK	0	5	8	1	14
VE3SB	0	3	9	1	13
VE3LPM	0	3	5	2	10
VE3MNI	1	0	7	1	9
VE3EUI	0	3	3	0	6
VE3BAJ	0	0	5	0	5
VE4JA	5	49	47	20	121
VE4FP	0	25	30	12	67
VE4JR	0	20	25	9	54
VE4STU	3	15	15	6	39
VE6CE	1	26	12	2	41
VE6XG	0	11	9	4	24
VE7BNI	15	75	120	37	247
VE7EJU	2	75	64	0	141
VE7ANG	1	10	1	10	22
VE7FAZ	6	44	41	2	93
VE7CCJ	12	20	19	7	58
VE7XA	1	20	23	3	47
VE7OM	0	20	22	1	43
VE7BCL	0	18	5	6	29
VE7BZI	1	10	1	10	22
VE7AVA	1	6	11	1	19
VE7BVZ	0	7	9	0	16
VE7FB	2	5	4	2	13
VE7EGM	1	1	4	1	7

National Traffic System

Net (Mgr)	Sess	QNI	QTC
APN (VE1YS)	26	106	61
KTN (VE3AJN)	14	98	11
OLN (VE3POJ)	31	648	41
OPN (VE3BDM)	30	634	94
OQN-D (VE3ORN)	27	87	4
OQN-E (VE3CYR)	30	115	392
OQN-L (VE3GSQ)	18	37	11
MTN (VE4IX)	22	185	35
MEPN (VE4LB)	27	1079	28
MMEN (VE4TE)	30	45	30
BCEN (VE7EJU)	31	768	255

Brass Pounders' League

This listing is available to amateurs who report to their SM a traffic total of 500 or a sum of originations and delivery points of 100 or more for any calendar month. All messages must be handled on amateur frequencies, using standard ARRL-CRRL form, within 48 hours of receipt.

BPL: None this month

Public Service Honour Roll

This listing is available to amateurs whose public service performance during the month indicated qualifies for 60 or more points in the following nine categories (as reported to their SM). Please note maximum points for each category: (1) Checking into CW nets, 1 point each, max 30; (2) Checking into phone/RTTY nets, 1 point each, max 30; (3) NCS CW nets, 3 points each, max 12; (4) NCS phone/RTTY nets, 3 points each, max 12; (5) Performing assigned NTS liaison, 3 points each, max 12; (6) Delivering a formal message to a third party, 1 point each, no max; (7) Handling an emergency message, 5 points each, no max; (8) Serving as an EC or NM for an entire month, 5 points max; (9) Participating in a public-service event, 5 points each, no max. Amateurs who qualify for Public Service Honour Roll 12 consecutive months, or 18 months out of a 24-month period, will be awarded a special certificate from CRRL Headquarters.

PSHR: VE4JA (121), VE4LB (107), VE3GNW (101), VE3BDM (94), VE3ORN (86), VE4STU (78), VE3CYR (72)

Service and Specialized Nets

Independent Net Managers: Your monthly reports are welcomed. Send to CRRL, Box 7009, Station E, London, ON N5Y 4J9.

Net (Mgr)	Sess	QNI	QTC
ARES Canada (VE3GV)	4	141	2
ARES Ontario (VE3GV)	1	4	0
CRRL ONTARS (VE3FQV)	30	10845	0
Grey-Bruce (VE3BDM)	30	100	15
Grey-Bruce SS (VE3BDM)	30	106	41
Laurentian (VE3FGT)	31	954	0
Trans-Provincial (VE3EUI)	31	11436	3
Aurora 1(VE4WR)	31	1635	19
Aurora 2 (VE4FP/WR)	31	2775	8

Amateur Radio Group. He is also Director of Communications for the city's emergency control organization. We recently received his 1990 report along with a copy of his group's policy statement. The group has some 36 licensed members. During the year, they participated in two tests and provided communications for many local events. The group holds a weekly net on the VE7ISC two-metre repeater.

The policy statement covers many of the items that usually appear in emergency communications plans. Two items particularly caught our eye. First was the lead item in the instructions to members in case of an emergency callout: "...check to ascertain the safety of family"—a most important step that all ARES members should take before leaving for their posts. The second item was the identification of five key locations in the city and the importance of assigning a specific member to activate a station at each location in time of emergency. This should certainly get communications started with a minimum of delay!

BC EARTHQUAKE POTENTIAL

Regular readers of this column will have noticed my fixation with our nation's ability or lack of it to cope with a major earthquake—in BC or elsewhere. Last spring, an Earthquake and Emergency Preparedness Conference was held in Nanaimo. It was sponsored by the BC Ministry of Health and the City of Nanaimo Emergency Planning Committee. The program included papers on the likelihood (considered to be high) of a major earthquake in the area, the post-quake risk of devastating fires, emergency hospital facilities, and the importance of good communications. The role of the Nanaimo Amateur Radio Group (NARG's) was well covered. NARG's report summarized the proceedings:

"A major earthquake is expected in this region—and there will be no warning. In addition to the devastation caused by the earthquake, there will be a shortage of water, food and clothing. Good communications will be a priority. We will never be fully prepared, but we can try."

The engineering profession is turning its attention, more and more, to the subject of earthquake preparedness. Some time ago, I reported on recommendations made to the BC provincial government by the Association of Professional Engineers of the Province of British Columbia. More recently, the prestigious monthly, *Mechanical Engineering* devoted an article to "America's Faulty Earthquake Plans". This article concluded that government support for planning to cope with earthquakes and their aftermaths is woefully inadequate.

My latest reading on the subject consists of two reports prepared for the Central Mortgage and Housing Corporation (CMHC). The first, written in February, 1989, bears the title "Assessment of Earthquake Effects on Residential Buildings and Services in the Greater Vancouver Area". Eight months later, the Loma Prieta earthquake (known to most of us as the San Francisco earthquake) occurred. This led to a follow-up CMHC report entitled "Earthquake Design in the San Francisco Area and Projection to Greater Vancouver". These two engineering reports are well written and include excellent photos of damaged structures. They present an alarming picture of the damage that could be experienced on Canada's west coast, and of the challenges facing public agencies—and ARES. Copies of the reports amy be obtained from CMHC's Canadian Housing Information Centre, 682 Montreal Road, Ottawa, ON K1A 0P7. There is no charge for these reports. *—Bob Boyd, VE3SV*

We hope that this column, which also appears in The Canadian Amateur, *will serve as an ongoing source of news and information about emergency preparedness activities in Canada. ARES members, particularly ECs, are invited to send information on what they are doing. We will share this information in future columns with the objective of increasing our ability to serve, should disaster strike.* ■

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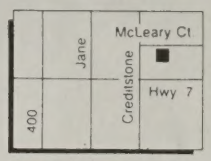

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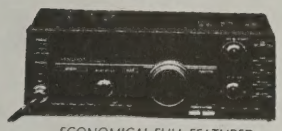

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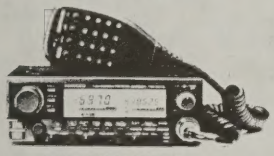

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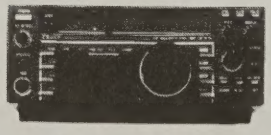

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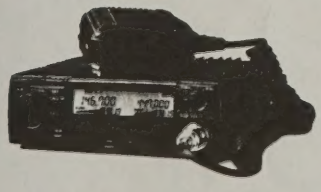

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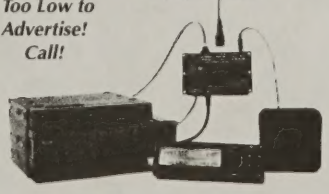

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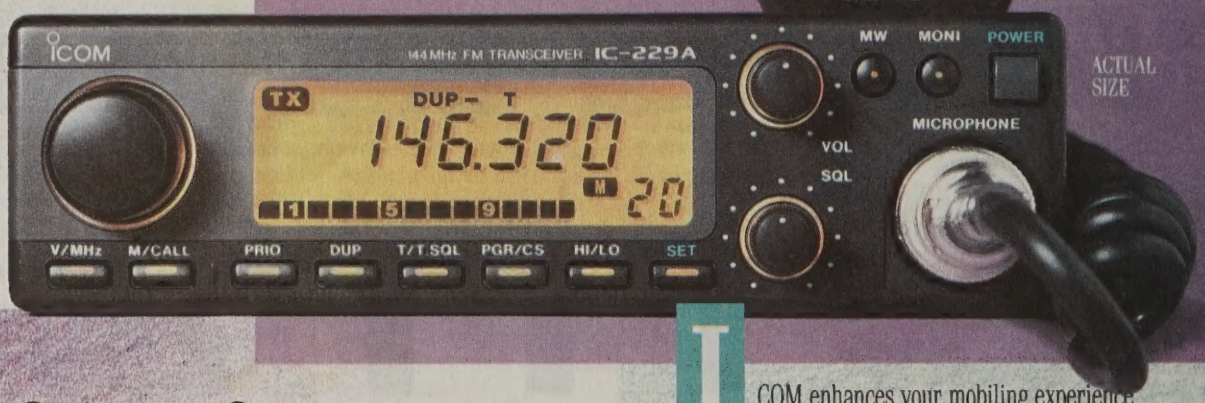

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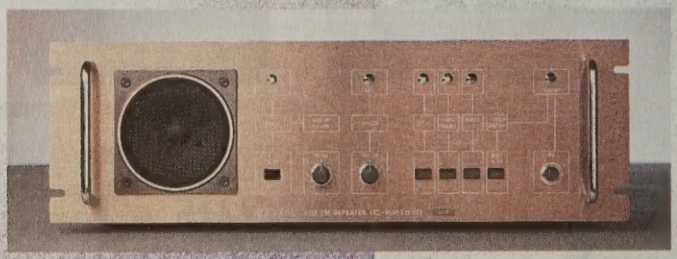

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